



Preventing Attrition Among FSH Combat Medics

Cognition, Learning, and
Psychosocial/ Emotional Issues

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Sponsors

- **COL Maureen Coleman,
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32nd Medical Brigade, FSH, TX
- **LTC Bruce McVeigh, Commander**
232nd Medical Battalion



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ARL-HRED-AMEDD FE

- Human Factors Engineering
- Ergonomics
- Fit the Task to the Person
 - First You Must Know the Person
 - Capabilities/Limitations
 - Physical/Cognitive/Emotional/Social/Cultural

Design: Programs, Tools, Environments,
Training, Equipment...

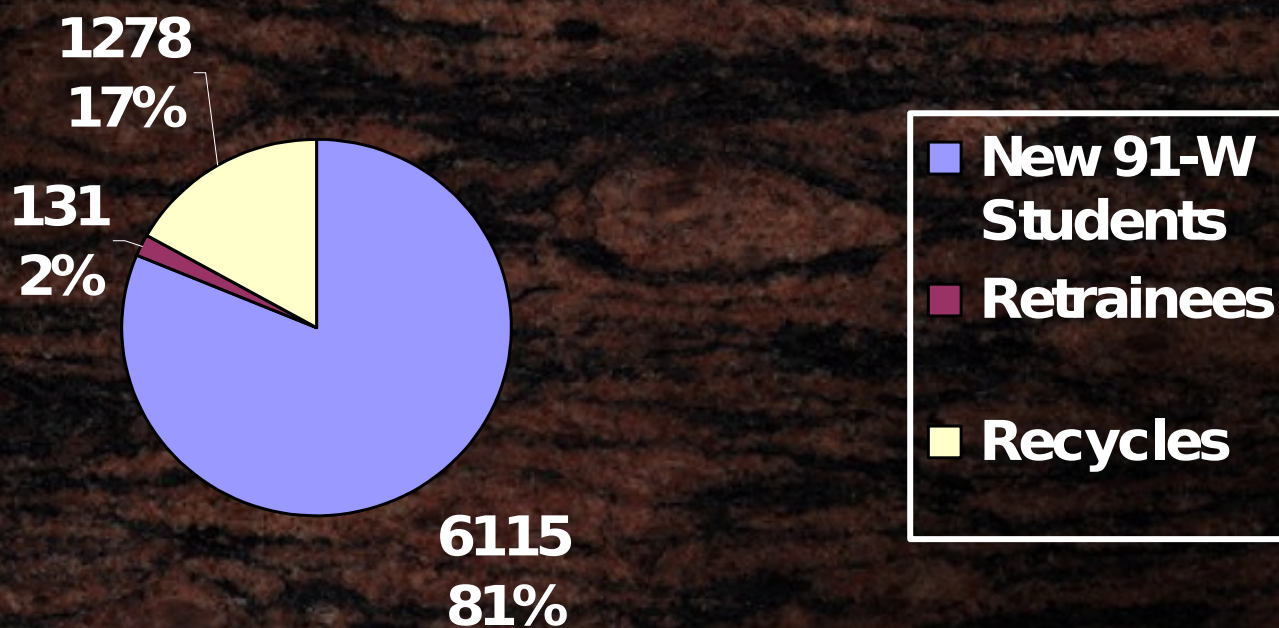


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91-W Composition at start of classes

FY 2003



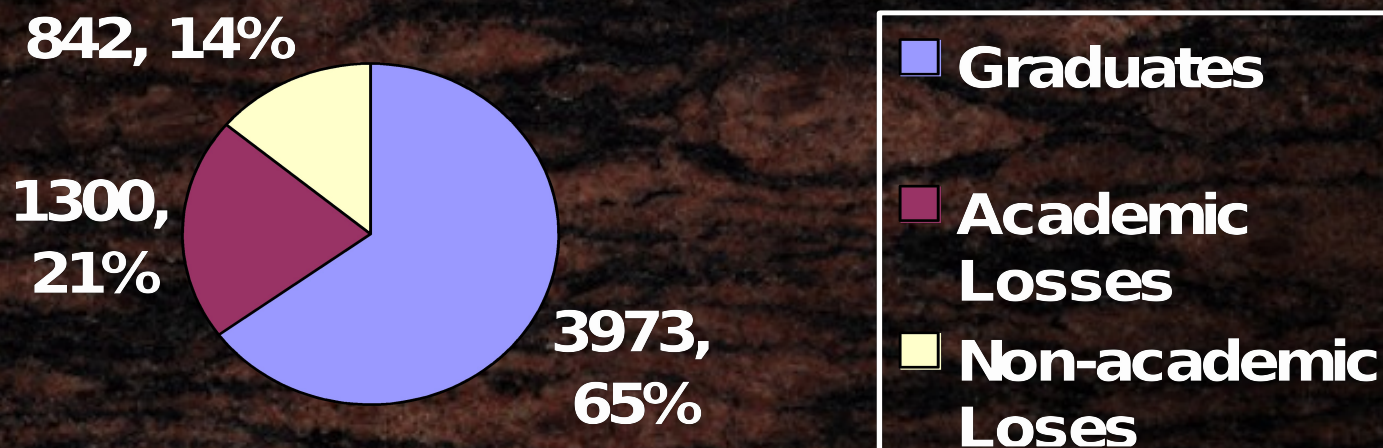
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Outcomes for New 91-W Students

FY 2003



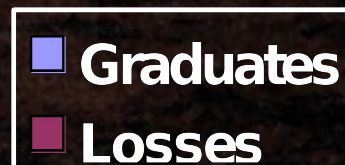
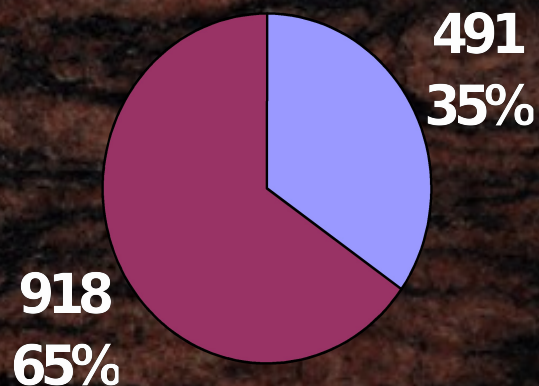
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Outcomes for Retrainees/Recycles

FY 2003



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Bottom Line

Attrition, for Academic Reasons, is too high

Possible Reasons

1) Not capable of the cognitive demands

• Exclude through Entrance Standards

- Pre-testing
- Test scores (GT Score, ASVAB, Reading Comprehension)

• Include & lower course standards

2) Capable, but have not achieved necessary academic skills

- Exclude, until they meet the required skills
- Include, w/ pre-test and additional education
 - Before acceptance into course
 - Before starting course
 - During course



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3) Capable, but learn in a different way

- Exclude through Pre-testing
- Include through pre-test and assistance
 - Learning Style
 - Learning Disability
 - Attention Deficit



4) Capable, but diverted attention. Psychosocial issues

- Life Skills for Current Issues - managing stress, time, finances, relationships, communication, decision making, problem solving, dealing w/ failure
- Emotional Issues (dealing w/ past events)





Choices

1) Single Large Study

2) Study Targeted at One Category

- Capability
- Learning
- Psychosocial/Emotional

3) Study Targeted at One Group

- Reading and Math Abilities
- Learning Disability
- Attention Deficit
- Stress Management/Coping
- Past Life Events



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Single Comprehensive Study

Pro

Con

**Know Full Picture
Interactions
Interventions for All**

**Time
Money
Resources**

**Avoid Many Small
Studies to Answer
the Questions**



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One Category

Pro

**All Category
Information**

Good w/ Indication

Con

**Don't Get Entire
Picture**

No Interactions

**Self-Selected
Answer?**



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One Issue

Pro

Focus

**More Information in a
Single Area**

Good w/ Indication

Con

**Don't Get Entire
Picture**

No Interactions

**Self-Selected
Answer?**

Other causes?



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Single, 1 Category, 1 Issue The Same Series of Questions...

- **Prevalence**

- How many soldiers are we talking about?
- Is it a large enough number to warrant changing the way we do business?

- **Problem - Is it a problem?**

- Is it predictive of performance?
- What type of performance?

- **Interventions**

- Are there any interventions available?
- What's best? Is it best for the Army?
- Who will offer it? How? Where? When?

- **Efficacy**

- Do the interventions reduce attrition?
- Do they improve performance?

Which Assessments Do We Use?!



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Method

- **Phase I – Assessment**
 - **Soldier Assessment**
 - **Performance Assessment**
 - **Develop Assessment Tool**
- **Phase II – Intervention**
 - **Develop Intervention**
 - **Use Assessment Tool to Assign Soldiers**
 - **Implement Intervention & Control**
 - **Efficacy Testing**



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Assessment Comprehensive Study

- **Soldier Assessment**

- Academic (Reading/Math)
- Learning (Styles, Disabilities, Attention Deficit)
- Life Skills (Stress, Coping, Problem Solving, Social, Failure)

- **Performance Assessment**

- Academic Scores (Modules, EMT, Ratings)
- Behavior (Incidents, Ratings)
- APFT
- Attrition (reports and interviews)



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Assessment One Category

- **Soldier Assessment**
 - **Academic (Reading/Math)**
 - **Learning (Styles, Disabilities, Attention Deficit)**
 - **Life Skills (Stress, Coping, Problem Solving, Social, Failure)**
- **Performance Assessment**
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Assessment One Category

- **Soldier Assessment**
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Identify Those Most Likely Candidates



- **Soldier Assessment**
 - **Academic (Reading/Math)**
 - **Learning (Learning Styles/Attention Deficit)**
 - **Life Skills (Stress, Coping, Problem Solving, Social, Failure)**
- **Performance Assessment**
 - **Academic Scores (Modules, EMT, Ratings)**
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 - **Attrition (reports and interviews)**



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Phase 2 Intervention

- **Develop Interventions**
 - Learning, teaching, classroom: AMEDDC&S
 - Health Care: BAMC
- **Intervene (current or historical controls)**
 - Screen
 - Track
 - Test



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What do the sponsors want?

➤ **Solve the Problem**

- **Decrease Attrition**
- **Improve Performance (grades, retention, performance)**

➤ **A Single, Short, Comprehensive, Validated Screening/Referral Tool**

- **Education**
- **Treatment**
- **Mentoring**



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Academics

- Reading Comprehension
- Mathematics



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Learning Styles

- Seeing, Hearing, Acting
- Reflective/Action,
Sensing/Intuitive,
Sequential/Global
- Mismatch between instructor &
student
 - Poor grades
 - Discouragement
 - Leave Profession before Graduation

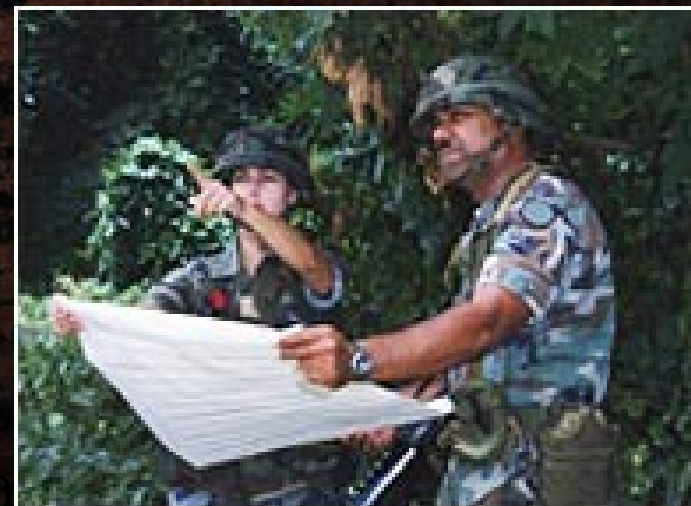


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Learning Styles

- **Matching Styles**
 - Better grades
 - Higher retention of information
 - Increased peer interaction
 - Improved problem solving
- **Interventions**
 - Instructors teaching
 - Student behavior





Life Skills

Stressors for Students

- Johnson (1978): Instruction, competition, organization of time, adjustment to college, administrative problems, social adjustment, finances, housing, transportation
- Felder (2003/1998): Most critical: grades, examinations, studying
- Others: fear of failure, test anxiety, time pressure, lack of control, separation from family & friends
- Military: lack of privacy, new living quarters & required behavior, physical challenge, constant supervision



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Life Skills

Stress Symptoms

- **Poor concentration, forgetfulness, worry**
- **Impulsive, startle, drugs/alcohol, accidents/injuries, appetite disturbances**
- **Perspiration, faster heart rate, dry mouth/throat, tire easily, insomnia, headaches, musculoskeletal pain, tension**



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Life Skills

Stress Management

- **Interventions:**

- **University of Chicago: 36 college websites**

- Soldiers**

- Can learn techniques
 - Will use throughout their careers

- **Instructors**

Coping Skills

Behavior Modification

Muscle Relaxation

Visualization

Goal Setting

Time Management

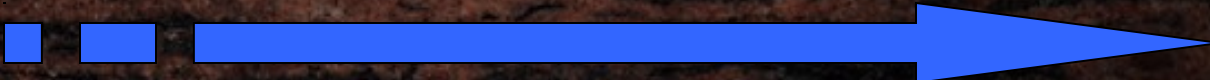
Study Habits



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Attention Deficit

- **ADD/ADHD or Symptoms/Traits**
 - True Disorder
 - Sign of the Times (Sesame Street Syndrome)
 - **Prevalence: 1-26%, 1 in 6**
 - **Non-HS grads, GED, HS, Trade School/Some College, College**
- 
- **Twice as common among males**
 - **Potential decrease in recruitment pool - 25%**
 - **How many are active duty now?**



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Next 8 Slides

Mental and Medical Health Outcomes Associated with Attention Deficit Hyperactivity Disorder

Russell A. Barkley, Ph.D.

**Professor, College of Health Professions
Medical University of South Carolina
Charleston, SC**



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Persistence of Disorder

- **Symptoms Decrease**
- **Adolescence:** (Based on parent reports)
 - 50% persistence to adolescence (1970-80s)
 - 70-80% in modern DSM studies (1990s onward)
- **Young Adulthood** (age 20-26) (Barkley et al. 2002)
 - Depends on who you ask (self vs. parents)
 - Parent reports correlate more highly with various domains of major life activities than do self reports
 - 46% Full disorder (parent reports using DSM3R)
 - 66% - Using 98th percentile (parent report)



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Educational Outcomes

(ages 20-25)

- **More grade retention (25-45%; MKE: 42 vs. 13)**
- **More are suspended (40-60%; MKE: 60 vs. 19)**
- **Greater expulsion rate (10-18%; MKE: 14 vs. 6)**
- **Higher drop out rate (30-40%; MKE 32 vs 0)**
- **Lower Class Ranking (MKE: 69% vs. 50%)**
- **Lower GPA (MKE: 1.7 vs. 2.6)**
- **Fewer enter college (MKE: 22 vs. 77%)**
- **Lower college graduate rate (5 vs. 35%)**

MKE = Milwaukee Young Adult Outcome Study

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Employment

- **More likely to be fired**
 - (MKE: 55 vs. 23%; Mean 1.1 vs. 0.3 jobs)
- **Change jobs more often** (MKE: 2.7 vs. 1.3 over 2-8 years since leaving high school)
- **More ADHD/ODD symptoms on the job**
 - As rated by current supervisors (MKE)
- **Lower work performance ratings**
 - As reported by current supervisors (MKE)
- **Lower social class (SES) (Hollingshead System)**
- **By 30s, 35% self-employed (NY study)**



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Motor Vehicle Driving

- Poorer steering, more false braking, slower reaction times to events, more crashes (using a simulator)
- Rated as using fewer safe driving habits by others
- Observed by driving instructors to make more driving errors due to poor impulse control and distraction
- More likely to drive before licensing
- More accidents (and more at faults) (2-3 vs. 0-2)
 - % with 2+ crashes: 40 vs. 6
 - % with 3+ crashes: 26 vs 9
- More citations (Speeding - mean 4-5 vs. 1-2)
- Worse accidents (\$4200-5000 vs \$1600-2200)
 - (% having a crash with injuries: 60 vs 17%)
- More Suspensions/Revocations (Mean 2.2 vs 0.7)
 - (% suspended: 22-24 vs. 4-5%)



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Sexual-Reproductive Risks

Assessed via self-reports: (MKE study)

- **Begin Sexual Activity Earlier (15 vs 16 yrs.)**
- **More Sexual Partners (18.6 vs. 6.5)**
- **Less Time with Each Partner**
- **Less Likely to Employ Contraception**
- **Greater Risk of Teen Pregnancy (38 vs. 4%)**
- **Ratio for Number of Births (42:1)**
 - **54% Do Not Have Custody of Offspring**
- **Higher Risk for STDs (16 vs. 4%)**



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Future Issues

- Determine if these outcomes are different for the inattentive type
- Further examine for sex differences
- Extend findings past ages 20-30
- Determine occupational costs (e.g., sick days, absenteeism, accidents on job, etc.)
- Study accident rates at home and community
- Examine impact on child-rearing and marriages
- Evaluate risk for medical illnesses (cardiovascular disease, cancer, obesity, etc.)
- Assess impact on life expectancy (Friedman et al. found lowest 25% of impulsive children had average 7 year reduction in life expectancy)

Positives?



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Attention Deficit Symptoms

- **Difficulty with:**

- **Sitting Still**
- **Planning & Organizing Tasks**
- **Following Through**
- **Paying Attention**
- **Staying Focused**
- **Studying**
- **Paperwork**

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- **Also**

- **Poor Handwriting**
- **Miss Details**
- **Distracted**
- **Forgetful**
- **Impulsive**
- **Job Changes**
- **Financial Problems**
- **Troubled Relationships**



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Attention Deficit

- **Ross (1997): Marine Corps Basic**
 - Measures of Attention Deficit accounted for 15% of variance of performance during BCT
 - AFQT, education level and age accounted for 2%
- **WRAIR (2002):**
 - 508 granted waivers '95-'99
 - Same retention rate
 - No performance measures
- **Barkley (2003):**
 - Seek (& do well in) structured environments
 - Front line vs. Goalee



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Attention Deficit

- Energetic, Creative, Risk Takers
- Intervention
 - When? Schooling, Down Time
 - Soldier
 - Education
 - Organization/planning
 - Medication
 - Instructors



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Four Proposals Four Choices

- **Comprehensive Study**
- **Learning Study**
- **Attention Deficit Study**
- **Composite**



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OFW

We're already asking it of our medic



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